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ABSTRACT

This paper presents a framework for assessing the economic and social costs of drug abuse in rural areas. The first section considers definitions for three key sets of concepts: (1) what is rural, the great diversity within rural contexts, and how to distinguish rural from urban; (2) the nature of social costs, as they affect communities as well as individuals; and (3) how societal costs might be measured. A four-part typology of direct and indirect economic and social costs at the individual and societal levels is then presented and illustrated with examples from rural research. Among the economic costs are costs of substances and treatment (direct individual costs); lost worker output and productivity (indirect individual costs); public expenditures for law enforcement, social services, and drug prevention and education programs (direct societal costs); and the value of productivity lost by perpetrators and victims of drug-related crime and by family caretakers of drug abusers (indirect societal costs). Among the social costs are school failure and dropping out, criminal and delinquent behavior, victimization, and conflicts with family and peers (direct individual costs); alterations in interaction patterns of persons in direct contact with drug abusers (indirect individual costs); reallocation of school time to implement prevention programs and of police resources and manpower to enforce drug laws and address drug-related crime (direct societal costs); and societal reactions to substance abuse, such as avoidance behaviors and altered perceptions of quality of life (indirect societal costs). (Contains 61 references.) (SV)

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The Economic and Social Costs of Drug Abuse Among the Rural Population

Joseph F. Donnermeyer

INTRODUCTION

There is no doubt that drug abuse among the rural population has increased and that differences in rural/urban prevalence rates have diminished (Ennett et al. 1993; Johnston et al. 1993; Wargo et al. 1990). Some rural/urban differences remain, but many would argue that the problem is as serious—if not more serious—in rural than urban areas (Donnermeyer 1992; Edwards 1992; Kingery et al. 1991; Leukefeld et al. 1992).

Other chapters in this monograph present specific information on the epidemiology and etiology of drug abuse in rural areas, and describe the challenges to implementing prevention and treatment programs in rural contexts. The purpose of this chapter is to present a framework for assessing the economic and social costs of drug abuse. First, the chapter begins by considering definitions of three key sets of concepts: (1) What is rural, and how is it distinguished from urban? (2) How should the terms economic and social be distinguished from each other? (3) What is an economic cost, and what is a social cost? Next, a typology of economic and social costs will be described and applied to the rural context. Finally, this chapter argues that very little is known about the costs of drug abuse to the rural population, and suggests ways in which future research might address these shortcomings.

DEFINING TERMS

What Is Rural?

Rural areas are incredibly diverse. Approximately one-fourth of the U.S. population lives in thousands of small towns and open-country areas that range from locations within eyesight of big city skylines to places that are more than a hundred miles from the nearest hospital. The diversity

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of rural places is based on characteristics of topography, region, and climate, on the demographic profile of the population, on the type of local economy, and on social and cultural variations of different rural peoples related to race, ethnic origin, and heritage. Official Government definitions of what is rural can never hope to capture this rich diversity. However, they do provide a useful first step toward recognizing that different types of rural places exhibit different prevalence rates for a variety of social problems, including substance abuse.

National epidemiologies, including the Monitoring the Future study and the National Household Survey on Drug Abuse, distinguish between metropolitan and nonmetropolitan areas. A metropolitan statistical area (MSA) includes a core county with a city of 50,000 or more persons and all satellite counties that are economically and socially integrated (i.e., 20 percent or more of the civilian labor force commutes to the core county for employment) with it. Nonmetropolitan is in fact a residual category consisting of all counties that do not qualify as either central city or satellite counties. The nonmetropolitan population is approximately 23 percent of the U.S. population.

Unfortunately, national epidemiologies fail to provide breakdowns of drug use prevalence for different kinds of nonmetropolitan areas. For example, most rural counties in Ohio are within 30 miles of an MSA and have fairly high population densities compared to rural counties of Montana. It is probable that these vastly different rural environments are associated with variations in drug abuse, its prevention and treatment, and its economic and social costs (Edwards 1992).

A second, older Census Bureau definition of rural is incorporated and unincorporated places of less than 2,500 persons that are not small suburbs next to large urban places. According to this definition, the rural population is approximately 25 percent of the U.S. population. Many locality-specific studies of rural substance use employ a population size of place or similar definition. However, as with the metropolitan-non-metropolitan distinction, this definition is inadequate for examining rural variations in the extent and correlates of drug abuse because it lumps together all rural places and does not distinguish different types of rural places by their population size and their distance from urban places.

On the surface, it would appear that the metropolitan versus nonmetropolitan distinction and the older urban versus rural distinction are similar because there is only a 2 percent difference in their respective population

estimates. In fact, they are only partially compatible; that is, they do not necessarily designate the same people. The newer definition categorizes the population on a county basis; however, many of the areas designated as metropolitan include areas that are rural by the older definition. That is, many rural people live in counties that are metropolitan. Conversely, there are many incorporated places larger than 2,500 in nonmetropolitan counties. Thus, many urban people live in nonmetropolitan counties.

Two published analyses of national-level studies indicated the importance of defining what is rural and recognizing diversity within rural contexts. Robertson and Donnermeyer (1995) used the 1991 National Household Survey on Drug Abuse to examine three groups of adults (≥ 21 years of age) living in rural areas of metropolitan counties, in urban places of nonmetropolitan counties, and in nonmetropolitan counties without a town of more than 2,500 persons. They found some differences in current use of drugs, as well as differences in characteristics of drug users based on the three different residential categories. Peters and associates' (1992) analysis of the American Drug and Alcohol Survey found that alcohol and other drug use among rural adolescents varied according to size of the largest town in the county and the proximity of the county to a central city metropolitan county. Prevalence rates among adolescents from the most rural places were the lowest. Similarly, the Monitoring the Future study reports lower prevalence rates among adolescents living in the open country and on farms than among adolescents living in small towns (Johnston et al. 1993).

Understanding the great variety of rural places helps in the estimation and interpretation of economic and social costs, in the development of public policy regarding drug use, and in the design and implementation of prevention and treatment programs. There are four principal and interrelated ways in which rates and patterns of substance use may vary among rural areas: (1) regional differences; (2) distinctions associated with variations in levels of urbanization (e.g., distance from large urban centers, size of nearest town or city that functions as the focal point for community services, and employment among the outlying population); (3) age, ethnic, gender, race, and other dimensions of diversity among rural populations; and (4) variations in economic well-being and occupational structure of rural communities. For example, early work by Harrell and Cisin (1980) from the National Household Survey on Drug Abuse found variations in marijuana use and acquaintanceship with marijuana users among rural respondents based on population density, the area's proximity to military bases, colleges/universities and

temporary work sites, and the region. Bell's (1984) analysis of a Statewide study on marijuana use among adults (18 to 59 years old) in Illinois found lower rates among those from farming areas and from rural areas more distant from metropolitan centers, even after controlling for various demographic and social characteristics of respondents.

What Is Economic? What Is Social?

When it comes to assessing the costs of substance use, the distinction between economic and social may appear simple. However, the term "social," like nonmetropolitan and rural, is often defined as a residual characteristic. That is, if a dollar figure cannot be assigned to the phenomenon, then it must be a social cost. It is important to distinguish between economic and social costs using more precise definitions.

Economics is the study of how scarce resources are utilized in a society (i.e., trends and patterns in the production, distribution, and consumption of wealth). Because resources are limited, economic costs of drug abuse may be thought of as "opportunity costs"—the amount of money spent on alcohol, other drugs, and the prevention and treatment of persons who use and abuse these substances represent investments that could be made elsewhere if there were no drug abuse. Some scholars have attempted to estimate the economic costs of drug abuse (Gust and Walsh 1989; Office of National Drug Control Policy 1993; Rice et al. 1990). These estimates are often national in scope and do not attempt rural/urban breakdowns. However, rudimentary extrapolations can be made using the nonmetropolitan and rural proportions of the U.S. population provided by Census definitions reviewed above, combined with valid information on prevalence rates of substance use among the rural population.

A definition of the term "social" must include the idea of interaction; that is, humans are social because they engage in interactions that are learned and shaped by culture and groups (Rogers et al. 1988). Thus, social costs can be examined as something other than a residual of those phenomena that cannot or have not been measured in monetary terms. As with economic costs, the definition of a social cost begins with the idea of opportunity costs, but it is defined in reference to alterations in patterns of interaction among members of a society that can be attributed to drug abuse. In other words, like money capital, the investment of human resources or human capital is altered by the presence in society of those who use and abuse drugs. These social costs can be assessed on

the basis of how drug abuse influences or changes the behaviors of users, of those with whom users directly interact, and, in the broadest sense, of how levels of substance use modify patterns of interaction among people within societies (i.e., changes in social structures). Thus, assessing economic costs deals with changes in the quantities of life, whereas assessing social costs deals with changes in the qualities of life.

A number of locality-specific studies with a focus on drug abuse among various rural populations have been concerned with measuring social costs, although they rarely use the term. Instead, they refer to social costs as problem behaviors, risk-taking, co-occurring behaviors, and consequences of substance use. This approach limits the assessment of social costs to the individual user, although a few studies examine potential costs from the perspective of persons who associate with substance users (Donnermeyer 1992). Rarely does the focus dwell upon social costs beyond the immediate interactional network of those who consume alcohol and other drugs (e.g., how substance use disrupts learning environments in the classroom, increases fear of crime in neighborhoods, or demoralizes the workforce).

Measuring Costs

Admittedly, establishing a clear link between drug abuse and these broader societal-level costs is difficult to do, not only because of the typical problems with establishing cause-and-effect relationships, but also because the task would be daunting, especially in reference to any kind of rural/urban breakdown or comparison. The term "cost" assumes causality, although most of the time researchers drop back and punt by admitting only that certain behaviors appear to be associated with or co-occur with drug use. The problem is that most research is based on smaller scale, locality-specific samples that are primarily cross-sectional in nature or on national-level epidemiologies that lack the kind of theoretical orientation and operationalized measures sufficient to develop and test causal models.

Given the small number of studies of the economic and social costs of substance use among the rural population, the problems discussed above will continue to limit progress. In an effort to stimulate and direct future studies, this chapter will review research on rural drug abuse within the framework addressed in the next section.

A TYPOLOGY OF ECONOMIC AND SOCIAL COSTS

As mentioned earlier, economic resources are scarce. Money spent on illegal substances and on enforcement, prevention, and treatment activities represent allocations that, in a perfect world, could be invested in other ways. These are the economic costs of substance use. In a similar fashion, the use of alcohol and other drugs, reactions from the public to alcohol and drug use, and activities associated with various enforcement, prevention, and treatment functions represent alterations of the interaction patterns among members of society. Thus, there are social costs of substance use associated with disruptions in routine and/or expected patterns of living among substance users, the persons with whom they interact, and society in general.

Having made the distinction between an economic and a social cost, it is equally important to note that they can be assessed together. The costs of drug abuse are simultaneously economic and social; they reflect how limited resources are spent as money capital and as human capital.

Table 1 presents a typology of the economic and social costs of drug abuse. The left column lists four types of economic costs; the right column lists four parallel types of social costs. This typology is based on the distinction between core versus other costs and direct versus indirect costs (Rice et al. 1990).

Direct core economic costs are those directly born by the person using drugs. It includes both the cost of purchasing drugs and the costs of treatment and support for drug-abuse-related disorders. Indirect core economic costs are the costs associated with drug use that are borne by society. This can include the cost to employers for lost output and productivity due to drug use and time spent by employees in drug treatment and rehabilitation services, hospital stays, and drug-related deaths.

Other economic costs are those born by society as it attempts to address the problem of drug abuse through various supply and demand reduction strategies. Other direct economic costs are expenditures for the following: (a) enforcement of substance use and trafficking laws, the prosecution of violators, and incarceration of those who violate these laws or other laws while under the influence of alcohol and drugs; (b) damages due to motor vehicle crashes and other accidents by persons under the influence; (c) the cost of public assistance and social service

TABLE 1. *A typology of economic and social costs.*

Type of cost	Economic cost	Social cost
Direct core	(a) Costs of substances and (b) treatment and support for substance use-related disorders.	Alterations in interaction patterns of substance users, including (a) school performance and dropping out, (b) criminal and delinquent behavior, (c) victimization, (d) family conflicts, (e) conflicts with friends, and (f) problems with work peers.
Indirect core	Lost output and productivity due to drug-related deaths and hospital stays.	Alterations in interaction patterns of persons in direct contact with substance users and emergence/increase of gangs and organized criminal activities associated with the production and distribution of drugs.
Direct other	Expenditures for (a) enforcement/prosecution/ incarceration, (b) damages due to substance use-related motor vehicle accidents and crimes, (c) costs of public assistance/social service programs of persons with drug abuse disorders, and (d) public and private expenditures for prevention and education programs.	Alterations in interaction patterns in response to socially defined unacceptable levels of substance use, including (a) school and other prevention programs, and (b) reallocation of police services to enforcement and prevention activities.
Indirect other	Expenditures for (a) estimated value of productive time lost in criminal careers, (b) lost productivity in caregiving by family members, and (c) lost productivity by victims of crime related to substance use, such as days lost from work.	Societal reactions to substance use, including (a) avoidance behavior and (b) altered perceptions of quality of life.

programs associated with alcohol and drug use problems; and (d) public and private expenditures for prevention and education programs designed to reduce demand. Indirect other economic costs include (a) estimates of

the value of productive time lost in criminal careers by those who sell and use drugs, (b) lost productivity in time spent by family members in care-giving activities, and (c) lost productivity of those victimized by crime committed by users and addicts.

This four-part typology can also be used to categorize social costs. Direct core social costs refer to alterations in the interaction patterns of the individual user, including (a) school performance, dropping out of school, and trouble with school authorities; (b) diminished career opportunities and job advancement and other limitations on job opportunities and quality; (c) engaging in criminal and delinquent behavior and trouble with police; (d) victimization due to a drug-using lifestyle; (e) family conflicts with parents and siblings; (f) conflicts with friends and other modifications in a user's network of interpersonal relations; and (g) problem relationships with work peers.

Indirect core social costs are borne by those in the immediate interactional environment of the substance user, including family members, peers, school authorities, colleagues at work, victims (other than the substance user) of motor vehicle crashes, and victims of crime related to drug use, all of whom experience modifications of their interaction patterns as a result of incidents involving substance users. A second group of indirect core costs include the emergence and/or expansion of gangs and other organized criminal activities related to the production and distribution of drugs in rural communities, as well as increased criminal and delinquent activity among those who associate with substance users.

As with the economic counterpart, other social costs go beyond reference to the individual user and those immediately surrounding the user. Direct other social costs include alterations of interaction patterns by individuals and groups in response to socially defined unacceptable levels of substance use. These include school programs to discourage drug-using attitudes and behavior, reallocation of police services to enforcement of drug laws, and prevention/demand-reduction programs such as Drug Abuse Resistance Education (DARE). Other indirect social costs include broader, societal reactions to substance use, including avoidance behavior to reduce risk of exposure to substance users (and groups) and altered perceptions of quality of life in neighborhoods and in society in general.

The four types of economic and social costs are parallel and represent ever-widening ripples on a pond. Despite similarities, however, social costs are not simply the nonmonetary aspects of economic costs, and the economic costs are not merely dollar values assigned to the social consequences of substance use. They are related but independent.

RURAL DRUG USE

Most national-level databases note that prevalence rates for drugs among the rural population are slightly lower, but comparable, to urban rates (although larger differences appear for specific types of drugs). Moreover, Edwards (1994) found that the proportion of highly drug-involved 12th grade students was similar for those from metropolitan, nonmetropolitan adjacent, and nonmetropolitan nonadjacent counties, but lower for nonmetropolitan counties with largest size of place of less than 2,500 persons. Similarly, results from nationally representative samples suggest a growing convergence of drug use between the metropolitan and nonmetropolitan populations (Johnston et al. 1993; Robertson 1994). For example, studies noted little or no rural/urban differences in marijuana use and cocaine use, and rural youth had higher rates of inhalant use. Rural/urban similarities in rates are both longitudinal (the rates are closer in more recent years) and generational (the rates are closer for younger age groups). However, some sectors of the rural population still maintain lower rates of substance use. For example, among adult workers 18 years and over, farmers have one of the lowest prevalence rates for use of alcohol, marijuana, and cocaine when compared to other occupational groupings (Gleason et al. 1991; Voss 1989).

Results from both Monitoring the Future (Johnston et al. 1993) and the National Household Survey on Drug Abuse (Ennett et al. 1993; Robertson 1994) indicate that prevalence rates of drug use declined through the late 1980s and early 1990s. However, drug use declined faster among the urban population than among those living in rural areas. Most recently, drug use rates have risen again, and it appears that both rural and urban prevalence rates have similar rates of increase (Johnston et al. 1993).

THE ECONOMIC COST OF RURAL DRUG USE

Estimating the economic costs of drug use among the rural population is an impossible task, but "ballpark" figures are possible given several assumptions. The first is that rural prevalence rates are generally not more than 10 percent below comparable urban rates. Second, the estimated rural population ranges between 23 and 25 percent of the total U.S. population, based on the metropolitan-nonmetropolitan and size of place definitions. Together, these two working assumptions help provide a rudimentary understanding of costs when the only solid statistics available are urban-based or are national in scope and do not include rural/urban breakdowns.

The Office of National Drug Control Policy (ONDCP) (1991) published a report estimating the retail value of illicit drugs, or direct core economic costs. Estimates were based on the number of drug users and their levels of consumption from various epidemiology sources and criminal justice statistics. According to the office's estimate, approximately $40 billion was spent in 1990. Can one safely estimate, therefore, that about one-fourth of this total pertains to the rural population? Probably not safely, but it would be a starting point.

One indicator that suggests that such an estimate would be too high is the rural/urban difference in number of drug-related arrests. The retail value of drugs consumed by those in the criminal justice system represents about 75 percent of the $40 billion annual pricetag (ONDCP 1991). According to the FBI Uniform Crime Reports (FBI 1992), in rural jurisdictions arrests for drug law violations are a lower percentage of total arrests, although arrests are relatively higher for alcohol-related incidents. Furthermore, as Beauvais (1992) notes, inhalants use is more prevalent in rural areas, especially among low-income rural groups, because inhalants are cheaper than other drugs. In addition, the wide-open spaces and physical and social isolation of many rural areas affords some residents the luxury of growing their own or manufacturing drugs such as marijuana and methamphetamines. However, another factor that affects such an adjustment (but works in the opposite direction) are anecdotal reports that the street value of illegal substances can be many times higher in rural areas (Donnermeyer 1994). A great deal of the variation in the costs of drugs depends on the type of drug being used (Loretto et al. 1993). The specific nature of the urban/rural environment affects the availability of different types of drugs. For example, in one nonmetropolitan county of Ohio, a local purchase of cocaine will cost the

user four times as much as on the streets of Columbus, about 65 miles away.

The Institute for Health Policy (IHP 1993), based on the cost estimation techniques and data provided by Rice and associates (1990), estimated direct core costs of $3.2 billion in 1990 for the treatment and support of drug use-related disorders. Almost 60 percent of these costs were hospital-related stays, mostly short term. Other support costs, which included the services of psychologists, social workers, nurses, therapists, and pharmacists, represented another 27 percent of the total. The IHP noted that there are more than 350,000 visits to intensive care units by cocaine and heroin users annually. Rural areas, however, have fewer medical facilities and services, and rural substance users may have lower levels of access to and participation in these various services. Indirect core economic costs encompass lost productivity due to treatment and rehabilitation therapy, hospital stays, and death. Rice and associates (1990) used estimated lost and reduced earnings of those who died or required hospitalization due to drug use-related disorders. For persons 18 to 64, the amount of lost productivity was $6 billion in 1985. Because rates of use are lower for farmers, rural estimates could well be lower (Gleason et al. 1991; Voss 1989). Conversely, some occupational categories such as mining, logging, and other extractive industries, which are also largely rural based, may exhibit higher drug use prevalence rates and, therefore, substantial loss of productivity from days off (Gleason et al. 1991). Clearly, drug users tend to report high levels of absenteeism due to illness; they frequently skip work, and are often high while on the job (IHP 1993).

Direct other economic costs are those associated with expenditures for several activities. Rice and colleagues' (1990) estimates placed direct other economic costs at $13.3 billion, including expenditures by Federal, State, and local agencies for enforcement, prosecution, and incarceration costs related to drug control in 1985. This included 44 percent for police protection, 10.4 percent for drug interdiction and other supply reduction strategies, 1.3 percent for federally funded drug abuse prevention and treatment programs, 8.3 percent for legal and adjudication functions, and 19.6 percent for local, State, and Federal correction expenditures, as well as other miscellaneous costs. Despite the decline in drug use since 1985, these economic costs have probably increased in light of increased efforts to reduce the drug supply through various interdiction strategies as a response to the public's demand for more action. The cost estimates of Rice and associates do not include the dollar value of private- and public-sector prevention and treatment programs (mostly local) or the

estimated dollar value of volunteer-based efforts. The IHP (1993) note that educational and prevention programs in communities smaller than 10,000 are less likely to address illicit drug use.

ONDCP's (1993) estimate of expenditures for drug control in 1991 was $13.4 billion for State and local governments alone. This estimate shows a greater share spent by States, especially for corrections. Table 2 also provides a summary of the costs for 18 rural States based on population density.[1] These States annually spend nearly $1 billion on drug control activities.

TABLE 2. *Expenditures for drug control activities by State and local agencies.*

	(Figures in millions of dollars)		
Type of expenditure*	State	Local	Rural States (local and State agencies)
Total	$6,063	$7,300	$ 995
Police protection	695	3,586	350
Courts only	303	313	33
Prosecution/legal services	195	483	54
Public defense	73	187	19
Corrections	4,342	2,500	471
Education	399	163	51
Other	53	68	17

KEY: * = Estimates in table 2 do not include expenditures by State and local government agencies for health and hospital services.

SOURCE: Office of National Drug Control Policy 1993.

Also included under direct other economic costs are damages due to substance abuse-related motor vehicle accidents and the administrative cost of public assistance and social service programs. Unfortunately, Rice and associates provided estimates on accidents only for alcohol-related accidents because they could find no estimates upon which to develop a figure for drug-related accidents. They calculated only $6 million for welfare and social service administrative costs for drug

abuse, compared to $471 million for alcohol abuse. Since drug arrest rates are lower for rural counties (in 1991, the FBI (1992) estimate was 217 drug abuse violations per 100,000 persons, compared to 476 in cities), the rural share of this estimate is less than the 23 to 25 percent range. A valid estimate, however, would have to be based on the origin of residence of persons arrested and estimated lost wages adjusted for the distribution of the labor force into various occupational categories in nonmetropolitan counties and/or rural places. In addition to lost productivity, Rice and associates (1990) estimated the cost of incarceration at $4.4 billion.

Indirect other costs is the final category for economic costs; it includes three different types of lost productivity associated with drug use. Rice and associates (1990) reported a 1985 estimate of nearly $14 billion in lost productivity among career criminals involved in illegal production and distribution of drugs.

The cost of drug-related crime to victims was calculated to be $842 million by Rice and associates (1990). Although violent and property crime rates have risen only slightly according to the National Crime Survey (NCS) (Bastian 1992; Bureau of Justice Statistics 1994), the FBI Uniform Crime Reports (FBI 1992) notes a more rapid rise, especially in violent crime incidents (rape, robbery, and assault) reported to the police. The two sources of national-level crime rate data may appear to be inconsistent, but part of the discrepancy can be resolved by remembering that the NCS includes crime experiences whether or not victims reported incidents to law enforcement (Bastian 1992).

Both crime reporting systems indicate that violent crime and property crime rates are two to three times lower (per capita) in rural communities (Donnermeyer 1994). A report from the NCS indicates that the average cost of a violent crime to the victim (including loss of property, medical expenses, and lost time from work) was $206, including $234 per incident of rape, $555 for robbery, and $124 for assault (Klaus 1994). Although these estimates may seem low, it is because the NCS of victim experiences also estimates that only 23 percent of crimes of violence involve an economic loss. Property crime costs are higher, with an average of $221 for larceny, $834 for burglary, and $3,990 for motor vehicle theft. About 91 percent of property crime victimizations include an economic loss. Only about one-third of crime-related losses are recovered by victims through insurance (Klaus 1994).

Rice and associates (1990) based their estimate of victim's economic loss due to drug-related crime at 64 percent of all economic loss from crime. Assuming that this figure is accurate, then the NCS's estimate of victims' total economic loss to crime of $17.6 billion can be adjusted by size of the nonmetropolitan population (the NCS's definition of rural), the victimization rate, and the percent of loss due drug-related incidents. The resulting figure is an economic cost to the rural population of about $1.8 billion. This is much higher than Rice and associates' (1990) estimate because it includes property loss and medical expenses, which are more legitimately part of direct other economic costs.

Aside from doubts in the confidence of various procedures for estimating the economic impact of drug use in rural areas, the figures that could be derived based on the evidence presented in this chapter suggest that the total is in the tens of billions of dollars. There is often a tendency for scientists and policymakers to ignore rural America when the discussion turns to crime-related issues. There will probably always be large metropolitan areas with crime and substance abuse problems that on a per capita basis far exceed all rural communities. However, cross-sectional comparisons are somewhat unfair, especially when the worst urban situations are used as benchmarks for assessing rural communities and lead to the false conclusion that there is no problem. Unfortunately, a more appropriate historical analysis is not possible because trend data simply do not exist on the economic and social costs of rural drug use. However, the various sources cited above point to ways more robust and complete economic assessments could be accomplished.

THE SOCIAL COSTS OF RURAL DRUG USE

Simply put, national-level summaries of social costs from rural drug use are not available. However, there have been a large number of locality-specific studies; unfortunately, nearly all focus on only one type—direct core social costs.

Research has found specific linkages between drug use and a variety of other problems, including:

- School performance and dropping out of school (Fagan and Pabon 1990; Jajoura 1993).

- Criminal and delinquent behavior (Caces et al. 1991; Chavez et al. 1989; Dembo et al. 1993; Elliott et al. 1989; Jensen and Brownfield 1986; Lauritsen et al. 1992; Spunt et al. 1990).

- Victimization (Dembo et al. 1993; Lauritsen et al. 1991, 1992).

- Family conflicts (Ashley 1989; Taylor 1990; White and Bates 1993; Windle 1993).

- Conflicts with friends (Pavkov et al. 1993; White and Bates 1993).

- Problems with work peers (Anglin 1994; White and Bates 1993).

The link between these problem behaviors and drug use represent direct social costs. In cases where rural-based research is available, the links are the same as those found for urban-based studies, although conclusions about these relationships in rural areas must remain tentative because of the paucity of rural-based studies (especially of the adult population). In addition, the extent to which variations in rural areas (and, as well, variations in urban areas) enhance or weaken these relationships is not known.

Schools are an important arena in which rural drug use costs can be assessed, especially among adolescents. Not only is the school environment an important social context for young people, but school performance is related to many other life events. Rural-based studies find the same pattern as urban-based studies; that is, there is a clear association between drug use and a lower grade point average (Bloch et al. 1991; Wolford and Swisher 1986), lower participation in extracurricular activities (Gibbons et al. 1986; Wolford and Swisher 1986), and less time spent with homework assignments (Gibbons et al. 1986; Wolford and Swisher 1986).

Rural studies confirm the relationship between marijuana and hard drug users with criminal offending. For example, Donnermeyer and colleagues (1987), Gardner and Shoemaker (1989), and Lalinec-Michaud and associates (1991) found that adolescent substance users were more likely to be involved in property offenses (including vandalism), violence, and juvenile status offenses (such as driving without a license). Elliott and coworkers (1989) also found a relationship between drug use and delinquent behavior among both metropolitan and nonmetropolitan youth.

There has not been much rural-based research linking drug use and victimization; however, there is no reason to assume that the relationship would be any different. In one study, Edwards (1994, p. 89) found that the "links among gang involvement, drug use, and violence hold true regardless of community size." In like fashion, only two studies with rural samples have examined the relationship between trouble with family and friends and drug use (Bloch et al. 1991; Duncan 1991). In both cases, the relationships were statistically significant.

A few scholars have reexamined the relationship between regionalism and cultures of violence. Rural Appalachian and southern cultures, as well as remote areas of the west, can exhibit unusually high rates of violence, spouse abuse, and child abuse (Gagne 1992; Nisbett 1993; Owen et al. 1993), and it is reasonable to hypothesize that drug use plays a role in these problem behaviors. This potential relationship was not examined, and additional research on this topic is needed. Finally, drug use associated problems in rural workplaces also remains to be studied.

Despite the various disclaimers about the lack of rural-based research concerning direct core social costs, the problem is comparatively worse for the other three types of social costs. Indirect core social costs refer to alterations of interaction patterns by those in contact with drug users, as well as rural offenders who become more closely linked to organized crime networks. As both Sarvela and colleagues (1988) and Peters and coworkers (1992) conclude, rural youth obtain information about drugs in the same ways as do urban youth (i.e., largely from drug-using friends and the media). These youth, in turn, are more likely to use drugs themselves. In addition, Donnermeyer's (1992) review of rural-based research on substance use found a number of studies that note the influence of peers in encouraging attitudes and behaviors favorable to drug use. The NCS found that rural youth were slightly more likely than students from central city and suburban counties to report the availability of drugs in school. In addition, students from nonmetropolitan counties were as likely to report fear of attack and avoidance of certain places in school as were their urban counterparts (Bastian and Taylor 1991). Because rural schools are generally smaller, students could be more susceptible to the influence of cliques who either encourage or discourage drug use. In contrast, larger urban schools provide more social niches, that is, interactional buffers in which some students would not be influenced by more dominant peer groups.

Beyond the school environment, families of substance users, especially children, are affected (IHP 1993). However, rural-based research on the impact of drug use by one family member on others is virtually non-existent, save for studies that find a relationship between use by parents and their adolescent offspring (Brody 1987; McIntosh et al. 1979).

Research by Donnermeyer (1994) indicated the rapid emergence of gangs in many rural communities. Some gangs have branched out from the city into nearby rural areas or use rural communities near interstate highways as drug production and distribution centers. Once established, these gangs take over the local retail market for drugs as well. However, gangs are also emerging in rural areas far removed from these urban influences, and local dealers and gang leaders are becoming linked into urban-based drug networks that frequently use violence as an organizational tactic. For example, there have been several reported cases of drive-by shootings in small rural communities of South Carolina, and the perpetrators were local youth who had lived there all their lives. The victimization survey of school students found that only 8 percent of students from nonmetropolitan areas reported a gang presence in their schools, compared to 25 percent in central city counties. However, the data for this study were collected in 1988 (Bastian 1992).

Donnermeyer's (1994) study of gang emergence in rural areas found that nearly all responding rural police agencies indicate that only since 1990 have they found physical and criminal evidence of local gang activity. A similar school-based victimization study today may find the kind of rural/urban convergence in gang activity previously noted for drug use. A study of small communities schools in rural Texas found levels of violence and drug use that exceeded national averages (Kingery et al. 1991). In addition, the study noted that many of the boys carried knives and handguns to schools.

The implementation of school-based and other prevention programs and changes in police resources and manpower to enforce drug laws and carry out prevention activities represent two types of direct other social costs. The national school survey revealed that a greater proportion of students living in nonmetropolitan counties than in metropolitan counties had attended school-based drug education programs. A national study of sheriffs found that more than 40 percent indicated that arrests for drug offenses, processing asset forfeitures from drug cases, and implementing programs to reduce drug use in the community were of major importance in changing workload assignments of deputies and other personnel

(Institute for Law and Justice, Inc. 1990). In addition, 85 percent of responding sheriffs departments have indicated implementation of DARE programs (which involves a substantial time commitment by an officer in the school), 78 percent have increased "street-level buy-bust" activities, and nearly 60 percent have increased personnel for narcotics investigations.

Indirect other social costs were defined as including altered perceptions and behaviors of the population associated with trends in substance use. These are very difficult to assess, and rural-based research on the link between changes in rural society and drug use simply does not exist. However, it is clear that fear of crime among rural residents is increasing, and, curiously, residents living in the open-country and farm areas exhibit the highest rates of fear because they realize that their geographic isolation makes them more vulnerable (Lee 1982; Weisheit et al. 1994). In contrast, residents of rural towns (generally greater than 2,500 but less than 10,000) have fear levels that are as low as those of suburban areas, where people feel the safest of all. There is one fundamental difference in perceptions of crime that may soon end: Although rural people are as likely to feel unsafe in their homes as urban dwellers, they feel more secure walking alone at night in their neighborhood than urban residents. This difference reflects the relative lack of street crimes in rural environments, which could change if drug-related gang activity takes on a greater presence in rural communities. As it stands now, when rural residents practice any form of avoidance behavior, it is of urban areas where they perceive crime, drugs, and violence to be much more prevalent (Weisheit et al. 1994).

CONCLUSIONS

The purpose of this chapter was to suggest ways in which the economic and social costs of drug use among the rural population could be assessed. By necessity, the chapter was exploratory and limited by both the relative paucity of rural-based research on drug use and the limited amount of research on many aspects of economic and social consequences.

The thesis of this chapter was that the first step toward developing more systematic research on economic and social costs is the development of a typology reflecting various kinds of costs. This was necessary for two reasons. The first was to differentiate between the concepts of economic costs and social costs. The second was to define costs as alterations in

the way scarce resources are used (i.e., economic costs) and alterations in the interaction patterns of individuals groups and society (i.e., social costs) that can be attributed to drug use.

Costs were then divided into four types (see table 1), beginning with consequences for drug users (i.e., direct core). The second type was indirect core, which referred to economic and social costs incurred by those in contact with substance users such as family members, coworkers, and peers. The third type included costs associated with agencies (e.g., police agencies, social service agencies, and schools) that reallocate economic and social resources to address drug use (i.e., direct other). Finally, the fourth type of costs are those incurred by society as it adjusts and reacts to drug use (i.e., indirect other).

What is the next step? The answer is to fill in the gaps by attempting to estimate the economic and social costs of drug use for the rural population. This second step includes examination of differential economic and social costs based on various demographic subgroups such as gender, age, and race. In addition, it must be determined whether differences exist in the costs of drug use by features associated with different kinds of rural communities, including variations based on characteristics such as region, economic composition, ethnic group and race composition, population increase/decrease, and other factors.

One important point is that development of a model predicting the economic and social costs of drug use will probably not look the same as the model that predicts drug use. Obviously, there will be some similarities, especially in predicting the first type of cost (direct core economic and social costs), because for both models the individual as the substance user is the unit of analysis or point of reference. The other three types of costs look to other issues because the unit of analysis is at the level of the group and the community, not the individual user.

Ultimately, society's norms and values define both economic and social costs, as the current debate over legalization and decriminalization of laws prohibiting production, trafficking, and consumption of substances illustrates. Assessment of these costs becomes part of the policymaking process of government, and it is this mix of defining problems and proposing solutions that researchers often refer to as the political economy. Public perceptions at this point are that drug use, gangs, and violent crime are the most important issues facing American society (Donnermeyer 1994). But the costs of prevention and treatment

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programs have limits that are also socially defined. With or without accurate and empirically based information, the general public, voters, and politicians will make decisions about levels of spending on various demand- and supply-reduction strategies.

Stereotypes about rural areas as crime-free environments, despite evidence to the contrary, persists in the minds of many, and are reinforced by media stories that consistently focus on the worst-case scenarios from inner-city areas. Further contributing to this myopia is the unwillingness of leaders in many rural communities to come to grips with the reality that substance use affects young people and families in their neighborhoods. The tendency is to practice the NIMBY (not in my backyard) syndrome, which says, "My community is O.K., but you should see some of the problems that the town down the road from us is experiencing." Obviously, these attitudes make it difficult for the local community to understand the true extent of economic and social costs and to support appropriate strategies to address the problem. As long as information on the economic and social costs of drug use remains vague, researchers will be ineffectual in changing attitudes that, in turn, affect policy on enforcement, prevention, and treatment strategies and resources devoted to rural areas.

NOTE

1. In addition to the metropolitan/nonmetropolitan and size of place definitions of rural, some researchers divided the States into rural and urban on the basis of population density. The criterion of 50 persons per square mile is used to classify States into either category. There are 18 rural States including: Alaska, Arizona, Arkansas, Colorado, Idaho, Iowa, Kansas, Maine, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Wyoming. The reader immediately notices that several of these States have sizable urban population centers and that a large share of the population lives in these centers, with the remainder of the State being largely uninhabited (such as Arizona, Colorado, and Utah). In addition, most of the 18 States are in the western region. Few States east of the Mississippi River, where the largest share of the rural population is located, are included.

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